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between latitudes 20° and 30° in 1902, and the shifting of the old maxima towards the poles appears to be correlated with the development of these.

An interesting feature in these high-latitude prominences is the narrow limits of latitude within which at any one time the zone is defined, and the tendency to form extended chains of prominences all approximately in the same latitude, but often exceeding 100° in longitude. When this occurs one may get an apparently stationary prominence, remaining at the same position angle for 10 or 14 days, after which it appears on the opposite side of the pole for another series of days.

Observations of Jupiter's Sixth and Seventh Satellites from Photographs taken with the 30-inch Reflector at the Royal Observatory, Greenwich, in 1906–7.

(*Communicated by the Astronomer Royal.*)

The Sixth and Seventh satellites of Jupiter have been under observation at Greenwich from 1906 August 28 to 1907 April 6, and photographs have been taken at every available opportunity. In all, 55 photographs of J. VI. have been obtained on 28 nights, the observations extending over a period of 222 days, and 12 photographs of J. VII. on 7 nights extending over a period of 87 days. All these have been measured and reduced and the results are given in the present paper.

In addition to the satellites, eight reference stars, whose positions were taken from the Astronomische Gesellschaft Catalogue (Berlin B. Zone), were measured on each photograph and the constants determined in the usual manner. Right ascensions and declinations of the satellites were then determined, and by comparison with the tabular place of Jupiter, position angles and distances deduced.

Observations of Satellite VI.

Date and G.M.T. 1906.		Apparent R.A.	Apparent Dec.	Position Angle.	Distance.	Exp.
	d h m s	h m s	° ′ ″	°	″	m
Aug.	28 15 23 29	6 22 42·60	+22 37 48·1	208·053	1712·8	28
	31 15 24 32	6 24 58·69	+22 36 25·1	203·733	1672·8	45
Sept.	25 13 43 0	6 40 52·04	+22 26 21·9	158·992	1662·5	40
	25 14 28 50	6 40 53·01	+22 26 21·4	158·935	1662·5	40
	26 14 16 1	6 41 23·20	+22 26 5·7	157·130	1678·1	41
Oct.	13 14 2 11	6 48 14·10	+22 24 21·6	129·782	2137·5	54
	16 13 44 50	6 49 3·42	+22 24 45·1	125·897	2245·7	20
	16 14 35 51	6 49 3·74	+22 24 44·9	125·910	2244·9	53
	19 16 28 9	6 49 46·76	+22 25 23·0	122·183	2363·6	30

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Observations of Satellite VI.—continued.

Date and G.M.T. 1906.					Apparent R.A.			Apparent Dec.			Position Angle.	Distance.	Exp.
	d	h	m	s	h	m	s	°	′	″	°	″	m
Oct.	27	12	59	35(*a*)	6	50	58·60	+22	28	14·3	113·838	2670·0	13
	27	13	36	28	6	50	58·76	+22	28	14·8	113·817	2671·2	40
	27	14	38	59	6	50	58·90	+22	28	15·6	113·793	2671·8	60
	27	15	49	32	6	50	59·17	+22	28	16·6	113·755	2673·9	57
Nov.	17	11	3	37	6	49	29·92	+22	44	44·1	96·457	3336·5	30
	17	11	59	59	6	49	29·40	+22	44	46·7	96·425	3337·8	57
	22	12	44	17	6	48	4·59	+22	50	30·5	92·685	3409·5	20
	22	13	17	17	6	48	4·23	+22	50	32·8	92·655	3410·8	25
Dec.	6	9	20	42	6	42	9·44	+23	8	18·9	81·815	3294·6	30
	6	9	54	21	6	42	8·75	+23	8	21·1	81·793	3294·9	20
	6	11	3	46	6	42	7·21	+23	8	24·6	81·755	3293·2	10
	10	11	15	35(*b*)	6	39	53·79	+23	13	43·5	78·103	3159·1	20
	10	11	47	22	6	39	53·08	+23	13	45·6	78·080	3159·2	15
	10	12	45	49	6	39	51·69	+23	13	49·6	78·028	3157·9	80
	12	11	32	38	6	38	42·36	+23	16	21·6	76·103	3074·8	60
	12	12	27	24	6	38	40·96	+23	16	26·0	76·035	3073·1	30
	12	12	57	9	6	38	40·25	+23	16	27·7	76·017	3072·9	10
	12	13	13	32	6	38	39·82	+23	16	28·9	75·997	3072·0	10
	14	10	17	2	6	37	30·57	+23	18	53·6	74·009	2982·9	21
	14	10	50	10	6	37	29·66	+23	18	54·7	73·992	2980·9	31
	21	11	6	37	6	32	52·53	+23	27	20·9	64·962	2564·9	30
	21	11	31	13	6	32	51·81	+23	27	22·3	64·927	2563·7	15
	1907.												
Jan.	17	7	20	27	6	13	56·30	+23	43	16·7	329·545	1525·4	15
	17	8	36	17	6	13	54·33	+23	43	16·7	329·351	1527·2	120
	17	12	4	12	6	13	48·78	+23	43	16·3	328·750	1533·2	44
	17	12	56	35	6	13	47·42	+23	43	16·4	328·620	1534·6	32
	22	8	18	23(*c*)	6	10	50·63	+23	42	50·0	311·757	1799·9	30
	22	8	55	6	6	10	49·70	+23	42	49·0	311·657	1801·6	30
	22	9	33	19	6	10	48·78	+23	42	48·4	311·570	1803·0	15
Feb.	1	10	40	41(*d*)	6	5	41·74	+23	39	30·8	290·539	2444·0	15
	1	11	0	38	6	5	41·43	+23	39	29·9	290·511	2444·1	10
	2	10	6	30(*e*)	6	5	16·97	+23	39	5·0	289·135	2501·9	16
	7	7	41	50	6	3	27·65	+23	36	34·0	282·900	2757·6	60
	7	8	55	56	6	3	26·65	+23	36	31·4	282·825	2759·6	60
	7	9	44	6	6	3	25·93	+23	36	31·5	282·807	2762·2	5
	7	9	51	34	6	3	25·87	+23	36	30·3	282·782	2761·7	7

(*a*) Faint and diffused.
(*b*) Very faint. On the réseau line.
(*c*) Bad image ; a little out of focus.
(*d*) Very faint.
(*e*) Nearly coincident with a faint star.
(*f*) Very diffused.

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Observations of Satellite VI.—continued.

Date and G.M.T. 1907.					Apparent R.A.			Apparent Dec.			Position Angle.	Distance.	Exp.
	d	h	m	s	h	m	s	°	′	″	°	″	m
Feb.	8	10	15	13	6	3	6·36	+23	35	56·1	281·637	2809·0	120
	8	11	37	27(*d*)	6	3	5·36	+23	35	56·3	281·620	2811·1	15
	11	9	10	1	6	2	16·20	+23	34	17·5	278·632	2929·8	86
	15	10	6	39(*d*)	6	1	22·76	+23	31	57·9	274·947	3064·0	24
Mar.	4	8	6	52(*f*)	6	0	48·89	+23	22	33·6	262·460	3238·6	120
	4	9	36	14	6	0	49·25	+23	22	31·6	262·417	3239·1	30
	10	9	55	30	6	1	47·39	+23	19	37·3	258·460	3181·2	106
	11	8	33	1	6	1	59·59	+23	19	9·0	257·800	3168·5	147
	11	10	22	0(*d*)	6	2	0·62	+23	19	9·2	257·792	3166·9	30
	18	8	57	3	6	3	55·59	+23	16	14·2	253·305	3042·7	65
Apr.	6	8	19	43	6	12	28·97	+23	9	30·2	239·872	2528·5	60

(*d*) Very faint.
(*f*) Very diffused.

Observations of Satellite VII.

Date and G.M.T. 1906.					Apparent R.A.			Apparent Dec.			Position Angle.	Distance.	Exp.
	d	h	m	s	h	m	s	°	′	″	°	″	m
Nov.	17	11	59	59	6	47	58·03	+22	53	51·8	85·408	2057·2	57
	22	12	44	17	6	46	6·94	+22	59	28·8	78·242	1815·5	20
	22	13	17	17(*a*)	6	46	6·29	+22	59	31·4	78·165	1813·3	25
Dec.	12	11	32	38	6	35	32·88	+23	24	12·6	17·282	1257·2	60
	12	12	27	24(*b*)	6	35	31·48	+23	24	15·7	17·150	1258·1	30
1907.													
Jan.	17	8	36	17	6	11	58·73	+23	55	37·9	311·093	3134·5	120
	17	12	4	12	6	11	53·68	+23	55	43·1	311·010	3143·7	44
	17	12	56	35(*b*)	6	11	52·39	+23	55	42·8	310·965	3145·2	32
Feb.	7	7	41	50	6	2	44·02	+24	0	14·6	301·897	3860·6	60
	7	8	55	56(*c*)	6	2	43·04	+24	0	17·1	301·903	3863·8	60
	8	10	15	13	6	2	25·27	+24	0	15·0	301·542	3878·8	120
	11	9	10	1	6	1	41·17	+24	0	13·5	300·695	3915·7	86

(*a*) Faint and diffused.
(*b*) Faint.
(*c*) Almost coincident with a faint star.

In deducing the position angle and distance given above, the error of the tabular place of Jupiter has been neglected.

To determine this error a number of photographs of Jupiter were taken with the 26-inch Refractor, using the occulting shutter. By this means good measureable images of Jupiter were obtained, together with sufficiently exposed images of the reference stars. The field of the 26-inch, on a 16 c.m. plate, is one square degree, and all the stars in this area given in the Astronomische

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Gesellschaft Catalogue were measured together with Jupiter, and the position of Jupiter deduced with reference to them.

It will be observed that the deduced place of Jupiter will be affected by the systematic error of the Catalogue, and the error due to unknown proper motions, and for that reason it is directly comparable with the positions of the satellites deduced in the same manner.

Five photographs were selected for measurement, and the results are given below.

Errors of Tabular Place (T – O).

1907.	R.A.	Dec.
	s	″
Feb. 28	– ·06	+0·2
Mar. 1	– ·06	+0·4
1	– ·05	– 0·2
20	– ·05	– 0·7
21	– ·07	+0·1
Mean	– ·058	– 0·04

The photograph on March 20 is unsatisfactory.

The tabular place is taken from the *Nautical Almanac.*

Royal Observatory, Greenwich:
1907 *May* 10.

Note on the Spectrum of α *Orionis.* By H. F. Newall and B. Cookson.

Titanium Flutings in the Red End of the Spectrum of α *Orionis.*

A photographic study of the red end of the spectrum of some of the brighter stars has been made during the past two months at the Cambridge Observatory with a four-prism spectrograph attached to the 25-inch refractor. It has led to the discovery, amongst other things, of a marked feature in that part of the spectrum of *α Orionis*, viz. three strong flutings, which in this note are interpreted as absorption flutings, with heads towards the blue end. Only a preliminary determination of the wave-lengths of these heads has been made; for, on account of the paucity of lines in the spark spectrum of iron, which has been used as a comparison spectrum, some uncertainty—to the extent of about 2 tenth metres—is attached to the identification of a red line near 7155, which has been used as one of the reference lines.

This line 7155 and the stellar flutings are in truth outside of the range of spectrum, for which the four-prism spectrograph had